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Flow restrictor-separation device

Description of Technology: The present invention relates to a method and apparatus for the separation into phases of a sample of liquid, including colloidal suspensions, having a plurality of phases of differing densities, and for the separation and maintaining of the separation of one phase of the liquid sample from the remainder of the liquid. The invention is particularly useful in the separation of blood into components thereof, especially for purposes of testing and analysis of blood components.

The liquid to be separated is contained in a chamber, typically a tube, containing a separation device. The chamber is rotated, either axially i.e. about its longitudinal axis, or in a conventional centrifuge i.e. about an axis perpendicular to the longitudinal axis, to cause the liquid to separate into distinct phases, during which rotation a separation device is moved through the liquid to physically separate at least one of the phases. The separation device maintains the separation at the conclusion of the rotation and through subsequent handling steps.

Patent Listing:

1. **US Patent No. 5,419,835**, Issued May 30, 1995, "Flow restrictor-separation device"
http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F5419835

Market Potential: Diagnostic tests frequently require separation of a patient's whole blood sample into components, especially cellular portions from non-cellular portions e.g. serum or plasma from cells. For instance, plasma is obtained from anticoagulated blood and still contains all of the coagulation proteins, whereas serum is obtained from clotted blood with the bulk of the coagulation proteins being retained with the clot and red blood cells. Samples of whole blood are typically collected by ventipuncture through a special cannula or needle attached to a syringe or an evacuated collection tube. The sample of blood in the form that is to be separated into components is typically drawn, using a needle, through a penetrable self-sealing elastomeric closure or other stopper into an evacuated tube. Separation is then accomplished e.g. by rotation of the tube in a conventional centrifuge e.g. a swinging bucket or a fixed angle centrifuge, as the different components of the whole blood have different densities, as described in U.S. Pat. No. 4,152,269 of A. L. Babson.

Benefits:

- **Makes sampling of whole blood easier to separate and keep separated**

Applications:

- **Separation into phases of a sample of liquid**

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